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10/708,671	03/18/2004	Timothy G. Offerle	81095823	2670
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Jerome R. Drouillard 10213 Tims Lake Blvd. Grass Lake, MI 49240			EXAMINER TO, TUAN C	
			ART UNIT 3663	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/708,671  
Filing Date: March 18, 2004  
Appellant(s): OFFERLE ET AL.

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Jerome R. Drouillard  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 2/2/2010 appealing from the Office action mailed 7/09/2009.

**(1) Real Party In Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

A statement identifying the previous appeal briefs is correct.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments after Final**

The appellant's statement of the amendment filed prior to the final rejection is correct, however, there is no indication of a status of amendments after final.

**(5) Summary of Claimed Subject Matter**

The appellant's statement of the summary of the claimed subject matter is correct.

**(6) Ground of Rejection to be reviewed on Appeal**

The appellant's statement of the grounds of rejection to be viewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contains in the Appendix to the brief is correct

**(8) Evidence Relied Upon**

U.S. 6,324,458 B1 Takagi et al.

U.S. 4,609,064 Suzuki et al.

**(9) Grounds of Rejection**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 36 is rejected under 35 U.S.C. 102 (b) as being anticipated by Takagi et al. (US 6,324,458 B1).

Takagi et al. discloses a vehicle comprising a shift lever having a reverse position generating a reverse position signal. For example, in figure 1B and the associated text in column 5, lines 37-47, drive direction F (Forward) or R (rearward) from the running direction sensor 62 may be provided by a shift position switch. Takagi et al. further teaches a control unit, coupled to the shift lever, applying brake-steer in response to the reverse position signal. As set in column 5, line 37-47, the driving direction signal is generated from the direction sensor (62) which may be provided by the shift position switch. Next, in column 10, Takagi et al. illustrate a process for applying brake-steer when the vehicle is driven rearward in order to control turn running behavior of a vehicle.

Takagi et al. further teaches a brake system that is controlled when applying the brake-steer in response to the forward or reverse direction. As set forth in column 5, lines 30-47, the vehicle control means (40) operates the hydraulic circuit means (44) to operate wheel cylinders 46FL, 46FR, 46RL, and 46RR for the front left, front right, rear left and rear right wheels for braking the corresponding wheels.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 27, 29, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 6,324,458 B1) and in view of Suzuki et al. (US 4609064).

Regarding claim 27, Takagi et al. discloses a vehicle comprising a shift lever having a reverse position generating a reverse position signal. For example, in figure

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1B and the associated text in column 5, lines 37-47, drive direction F (Forward) or R (rearward) from the running direction sensor 62 may be provided by a shift position switch. Takagi et al. further teaches a control unit, coupled to the shift lever, applying brake-steer in response to the reverse position signal. As set in column 5, line 37-47, the driving direction signal is generated from the direction sensor (62) which may be provided by the shift position switch. Next, in column 10, Takagi et al. illustrate a process for applying brake-steer when the vehicle is driven rearward in order to control turn running behavior of a vehicle.

Although Takagi et al. teaches a control system that applies brake-steer in response to the backward or reward driving behavior, Takagi et al. fails to disclose a transfer case having a transfer case mode, and a control changing the transfer case mode based on brake-steer.

Suzuki et al. teaches a part-time type four-wheel drive system has a 2WD-4WD changeover means capable of changing the drive system from a four-wheel drive mode to a two-wheel drive and vice versa. The drive system of Suzuki et al. include a control unit (32) (see figure 2) that automatically changing the drive system from the four-wheel drive mode to the two-wheel drive mode when a steering angle of the vehicle become equal or larger than a predetermined angle (see abstract and figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the drive system as taught by Takagi et al. to include the drive system that automatically changing from four-wheel drive mode to a two-wheel drive mode when a steering angle equal or larger than a predetermined angle as taught

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in Suzuki et al. in order to improve the stability when the vehicle is traveling rearward along a curve.

As to claim 29, Takagi et al. further teaches a brake system that is controlled when applying the brake-steer in response to the forward or reverse direction. As set forth in column 5, lines 30-47, the vehicle control means (40) operates the hydraulic circuit means (44) to operate wheel cylinders 46FL, 46FR, 46RL, and 46RR for the front left, front right, rear left and rear right wheels for braking the corresponding wheels.

As to claim 30, Takagi et al. further discloses the braking system that is controlled with applying brake-steer in response to the forward or reverse direction in order to reduce turning radius (see column 10, lines 3-46).

As to claim 32, Takagi et al. further teaches a steering wheel angle sensor generating a steering wheel angle signal, and a control is programmed to apply brake-steer in response to the reverse directional signal and the steering wheel angle signal. As shown in figure 1B, the steering wheel angle sensor (54) generating a steering wheel angle signal  $\theta$ , and the vehicle behavior control (40) is programmed to apply brake-steer in response to the reverse direction signal generated by the drive direction sensor (62) and said the steering wheel angle signal  $\theta$  generated by the steering wheel angle sensor (54).

### **(10) Response to Argument**

The examiner rejected claim 36 35 U.S.C. 102 (b) as being anticipated by Takagi et al. (US 6,324,458 B1), and rejected claims 27, 29, 30 and 32 under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. and Suzuki et al. as listed above. The

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Appellant is appealing to the rejection of claims 27, 29, 30, and 32, and selecting the representative claim 27 for the discussion in the appeal brief.

The Appellant argues that the Examiner's rejection based on Takagi and Suzuki is not sustainable because steering angle is not equatable with reverse operation or operation with brake steering. The Appellant contends that the Specification defines the recited brake-steer as the change of characteristic of a vehicle such as the turning radius or tracking of the vehicle using one or more brakes. In the Appeal Brief, the Appellant contends that brake-steer may be employed independently of steering angle, and the 4WD mode changed to 2WD mode as a function of steering angle does not render a transfer case mode change in response to brake steering.

In contrast, the examiner has discovered that Suzuki et al. teaches a four-wheel drive system has a 2WD-4WD changeover means capable of changing the drive system from 4WD mode to 2WD mode. In Suzuki et al. the steering angle sensor (30) is employed for sensing a steering angle of the front wheels (25a), and (25b) by sensing rightward and leftward movements of a movable member. Another sensor (31) is provided for detecting whether the drive system is in the 4WD mode or 2WD mode. A control circuit (32) is coupled to the steering angle sensor (30) and the sensor (31) for receiving signals from both sensors. When the vehicle is running in the 4WD mode, and the received steering angle signal of the steerable front wheels (25a) and (25b) equal to or larger than a predetermined angle, the control circuit sends the control signal to the actuator (23) to command the changeover unit (26) to change the drive system to 2WD mode. Suzuki further illustrate the situation when the steering angle become



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larger than a predetermined steering angle, the turning radius of arc-shape path travel by the front wheels become largely different from the turning radius of arc-shape path traveled by the rear wheel. Therefore, the control circuit disclosed in Suzuki is capable to change the drive system from the 4WD mode to 2WD mode when the vehicle characteristic has been changed as discussed herein above. Furthermore, the claim requires the claimed controller changes the transfer case mode in general based on brake-steer as a change of a vehicle characteristic rather than requires such the change based on specific braking action, steering action or the combination action of braking and steering.

As presented in the final rejection, the primary reference to Takagi et al. discloses a vehicle comprising a shift lever having a reverse position generating a reverse position signal, and a control unit, coupled to the shift lever, applying brake-steer in response to the reverse position signal. Takagi et al. fails to disclose a transfer case having a transfer case mode, and a control changing the transfer case mode based on brake-steer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the drive system as taught by Takagi et al. to include the drive system that automatically changing from four-wheel drive mode to a two-wheel drive mode when a steering angle equal or larger than a predetermined angle as taught in Suzuki et al. to gain the advantage of smoothly turning at a sharp steering angle.

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**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interference section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (571) 272-6985. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

Conferees:

Tuan C To (Examiner) /TT/

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Thomas Black (Appeal Specialist) /tgb/

Cuong Nguyen (Primary Examiner) /CN/

/Tuan C To/

Primary Examiner of Art Unit 3663/3600

May 07, 2010